

ABSTRACT

[0029] An inter-layer dielectric structure and method of making such structure are disclosed. A composite dielectric layer, initially comprising a porous matrix and a porogen, is formed. Subsequent to other processing treatments, the porogen is decomposed and removed from at least a portion of the porous matrix, leaving voids defined by the porous matrix in areas previously occupied by the porogen. The resultant structure has a desirably low k value as a result of the porosity and materials comprising the porous matrix and porogen. The composite dielectric layer may be used in concert with other dielectric layers of varying porosity, dimensions, and material properties to provide varied mechanical and electrical performance profiles.